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REMARKS

Applicants appreciate the Office's review of the present application. In response to the final Office Action, the cited references have been reviewed, and the rejections and objections made to the claims by the Examiner have been considered. The claims presently on file in the present application are believed to be patentably distinguishable over the cited references, and therefore allowance of these claims is earnestly solicited.

In order to render the claims more clear and definite, and to emphasize the patentable novelty thereof, new claims 27-33 have been added. Support for any claim amendments and new claims is found in the specification, claims, and drawings as originally filed, and no new matter has been added. Accordingly, all claims presently on file in the subject application are in condition for immediate allowance, and such action is respectfully requested.

Rejections

Rejection Under 35USC §103

Claims 2, 4, 7-8, 13, 16, 21-22, and 24-26 have been rejected under 35 USC §103(a), as being unpatentable over U.S. patent application publication 2002/0191517 by Honda et al. ("Honda") in view of U.S. patent 6,145,368 to Klein ("Klein") and further in view of U.S. patent 5,119,363 to Satoh et al. ("Satoh"). Applicants respectfully traverse the rejection and request reconsideration.

As to a rejection under §103(a), the U.S. Patent and Trademark Office ("USPTO") has the burden under §103 to establish a *prima facie* case of obviousness by showing some objective teaching in the prior art or generally available knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Manual of Patent Examining Procedure (MPEP) section 2143 discusses the requirements of a *prima facie* case for obviousness. That section provides as

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follows:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must be found in the prior art, and not based on applicant's disclosure.

The rejection of independent claim 21, and its dependent claims 2, 4, and 24, is respectfully traversed for at least the following reasons. Claim 21 recites:

"21. (Previously presented) An optical disk drive, comprising:
a spindle motor to turn an optical disk;
an OPU to apply an image to a coating within a label region of the optical disk; and
an encoder configured to track substantially identical disk speed features in a first annular ring at a first radial position on the optical disk in a region distinct from the label region so as to thereby obtain disk speed data, the disk drive further configured to track disk angular orientation features different from the disk speed features in a second annular ring at a second radial position on the optical disk so as to thereby obtain angular orientation data, the second annular ring abutting the first annular ring, the annular rings proximate a central hub of the disk, the disk angular orientation features different from the disk speed features, and at least some of the disk angular orientation features having an overlapping angular position with at least some of the disk speed features." (emphasis added)

The Office has not established a *prima facie* case of obviousness at least because the applied references do not teach or suggest all of Applicant's claim limitations.

With regard to the annular rings of features on the optical disk, the Office admits that the Honda reference in view of the Klein reference does not disclose the limitation of "the first annular ring abutting the second annular ring", and does not assert that the Satoh reference teaches this limitation (Office Action, p.4). However, the Office takes the position that "shifting the position of the annular rings of Honda in view of Klein so that they abut would have been obvious to one of ordinary skill at the time of the invention", based on *In re Japikse*, 181 F.2d

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1019, 86 USPQ 70 (CCPA 1950) (Office Action, p.5). Applicants respectfully disagree.

The Office states that *In re Japikse* held “that shifting the position of a part is obvious when it does not modify the operation of the invention” (Office Action, p.5). As summarized in the MPEP, “Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device” MPEP 2144.04 VI. C.

Applicants respectfully disagree. Shifting the position of the annular rings of the present invention from an abutting position to a non-abutting position would modify the operation of the present invention. More specifically, shifting the position of the angular rings of the Klein reference combined with the Honda reference from a separated position to an abutting position would modify the operation by changing the size of the continuous, uninterrupted area of the label region on the optical disk.

In the present invention, an optical disk 100, such as a CD or DVD, has a label region 106 coated with a material writeable by an optical pick-up unit of a disk drive. “An image 108, such as text or graphics, may be applied to the label region 106 during the labeling process. The labeling process can include reading features 110, which ... provide information on disk speed ... and disk angular orientation” (Specification, para. [0022]-[0023]). It is well-known that CDs and DVDs can store large numbers of files, such as music, images, documents, and/or programs, and typically have labels that identify the particular contents. However, the surface area of optical disks is of limited size. Inherently, therefore, to provide sufficient room to be able to more fully identify the contents of the disk, it is highly desirable to maximize the continuous, uninterrupted area of the label region 106. The larger the label region 106, the more text, graphics and/or image information can be written to it. Abutting the first and second angular rings, as recited in claim 21, advantageously maximizes the continuous, uninterrupted area of the label region 106.

The Honda reference similarly discloses an optical disk having “a visible light characteristic changing layer” that, when exposed to a laser beam “modulated in accordance with

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image data such as characters or graphic images to be printed”, forms “a image corresponding to the image data on the label surface” (Abstract). However, on an optical disk according to the combined Honda and Klein references in which the two annular rings are separated, the label region would be split into different portions, and each portion would be disadvantageously smaller than if the two annular rings abutted. This disadvantageous configuration is illustrated, for example, in Fig. 2 of the Klein reference, in which one portion of the label region is between the disk hub and index channel 102, while another portion of the label region is between index channel 102 and data channel 104. If a user were to write a larger amount of text, graphics, or images than fits within one of the different portions such that the writing would span two different portions of the label region, the image quality of the writing would undesirably suffer because of the visual discontinuity in the writing that would result as a result of the gap caused by one of the channels 102, 104. For example, a photographic image that spanned two portions of the label region would have a circular line running through the middle of it.

The Office also argues that “Whether the first annular ring abuts the second annular ring makes no difference to its purpose: the speed and angular tracking works no better or worse whether the rings abut or not” (Office Action, p.5). In this regard, the Office further contends that “applicant’s specification, as originally filed, does not disclose any benefit or reason to have the rings abut one another. Applicant merely discloses embodiments where they abut (as per Fig. 1) and other embodiments where they do not (as per Fig. 2)” (Office Action, p.5). The Office also takes the position that the visual discontinuity resulting from having a non-abutting annular ring “is a matter of artistic merit and not of engineering” (Office Action, p.14).

Applicants respectfully disagree. Applicants are entitled to disclose and claim different embodiments of the invention. The embodiments presently claimed are embodiments in which the annular rings abut each other. The drawings, as originally filed, disclose the benefit, as discussed above, provided by the abutting rings: maximizing the size of a continuous, uninterrupted area of the label region. It is readily apparent that abutting the two annular rings, as illustrated in Fig. 1, provides a larger continuous, uninterrupted area of the label region 106

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than do the separated annular rings of Fig. 2. Providing the largest possible continuous, uninterrupted area of the label region advantageously allows more and/or larger text, graphics, and images to be written to the label region of the disk without having the image quality of the written markings, as perceived by the user, unacceptably degraded by the presence of a ring in the middle of the label region and through the text, graphics, and images. The degradation of image quality is well known to be an important consideration to users of visual matter of all kinds. As such, abutting the annular rings to provide larger continuous labeling areas without visual discontinuities is a matter of engineering, not of mere art.

Therefore, for the reasons discussed herein, the applied references do not teach or suggest all of Applicants' claim limitations, and thus the rejection is improper at least for this reason and should be withdrawn.

Furthermore, the Office has not established a *prima facie* case of obviousness at least because there is no suggestion or motivation or articulated reason with some rational underpinning to modify the reference or to combine reference teachings.

First, as clearly required by MPEP 2144.04 VI. C., "Rearrangement of Parts":

"The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims ... is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). (emphasis added).

In the Office Action, the Office has provided no motivation or reason to abut the rings of the Klein reference. The Office apparently believes that, in an obviousness rejection based on rearrangement of parts, no such motivation or reason is necessary. However, this position is specifically contradicted by both the MPEP and legal precedent, and thus is inadequate to support the obviousness rejection.

Second, because no motivation or reason has been provided, it appears as if the only reason to abut the two annular rings is that this is the particular configuration recited in

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Applicants' claims. Such constitutes impermissible hindsight.

Third, modifying the Klein reference to reposition the angular rings from adjacent the outer rim of the disk to proximate the hub of the disk would result in an inoperative device and thus teach away from the modification or combination. While the Office relies on the Satoh reference to teach positioning a single annular ring proximate the hub, the single annular ring of the Satoh reference does not read on the two separate annular rings, one of disk speed features and the other of disk angular orientation features, recited in claim 5. The Office identifies data channel ring 104 and index channel ring 102 of the Klein reference as corresponding to these features. Thus, it is the rings 104, 102 of the Klein reference that the Office is rearranging to be proximate the central hub of the disk. However, in doing so, the Klein reference would be rendered inoperative. The rotatable disk 100 of the rotary encoder of the Klein reference, used in a mouse 310 or a joystick 320, is necessarily much smaller in diameter than a CD or a DVD disk. Thus the rings of the data channel 104 and the index channel 102 of the Klein reference are positioned near the outer edge, not the inner hub, of the disk 100 in order to provide sufficient resolution and accuracy of the angular position measurements. The data channel 104 has "a large number of openings (pulses) specifying incremental angular displacements of disk 100" (col. 1, lines 53-55). If the ring of data channel 104 were to be placed closer to the hub, where the circumference of the ring would be smaller, the number of openings in the ring would be reduced. A fewer number of openings in the 360 degree span of the disk would disadvantageously diminish the resolution and accuracy of angular position measurements. As a result, the Klein encoder would be rendered inoperative by this modification for its intended purpose of providing accurate angular position information for a mouse, joystick, or similar devices. The reduced resolution and accuracy of the mouse/joystick would result in "jumpy" movement of the cursor on the computer screen which would be unacceptable to users, and could even prevent the cursor from being placed at desired graphical locations on the computer screen. In addition, one skilled in the art would not be motivated to substitute a disk the size of a CD or

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DVD of the Honda or Satoh references for the rotatable disk 100 of the Klein reference, as this would make the Klein mouse or joystick unacceptably large in size.

The Office contends that

"Klein has only been relied on to teach the method of tracking speed and angular orientation. That teaching has been applied to the optical disc of Honda, ... and therefore the annular rings ... are being used in an optical disc. As Satoh shows, an optical disc is large enough to have annular tracking rings proximate the central hub." (Office Action, p.18)

To whatever extent this is true, it is believed not to be pertinent. It has been held that

"If references taken in combination would produce a 'seemingly inoperative device', we have held that such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness" *McGinley v. Franklin Sports Inc.*, 60 USPQ2d 1001, 101 (Fed. Cir. 2001).

Thus because, as explained above, the Klein reference would be rendered inoperative by the suggested modification of placing the rings 104, 102 proximate the central hub of the mouse or joystick as in the Satoh reference, the Klein reference teaches away from the combination and cannot serve as a predicate for a prima facie case of obviousness.

Fourth, modifying the Honda and Klein references to include an annular ring as taught in the Satoh reference would result in an inoperative device and thus teach away from the modification or combination. In the Satoh reference, the track region 7 (Fig. 2) of the optical disk to which data can be written has "groove-like guide tracks" (col. 4, line 15). Recording of data on the optical disk is accomplished by applying "a tiny spot of laser light beam, which is focused so that the diameter is less than 1 micrometer" on a desired location of the optical disk (col. 1, lines 12-15). The positioning of the optical head 28 (Fig. 5) relative to the optical disk 1 is accomplished by a tracking control that "is effected so as to follow the zigzag motion caused by the eccentricity of the guide tracks with the above-mentioned tiny spot focused on the groove-like track" (col. 1, lines 36-39). For example, "[t]he movement of the optical head 28 is performed with the tracking control of the optical head switched off, by counting the number of crossing tracks represented by a track crossing signal of a tracking error signal by means of a crossing track number counter

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38" (col. 7, lines 43-48). Once the optical head is position such that it "faces the writing track, tracking control is effected" and "a laser light beam is applied to the optical disk 1 for effecting writing and reading" (col. 7, line 58 – col. 8, line 2).

During the above operations, the optical disk is positioned according to the Satoh reference in such a manner that the groove-like tracks are detectable by the optical disk drive. When the optical disk 10 (Fig. 1) of the Honda reference is positioned for data recording with the substrate 12 adjacent the optical pickup of the disk drive, any grooves would be visible through the substrate 12, as is required for data read or write operations. However, when the optical disk drive of the Honda reference operates to record visible markings on the optical disk 10, the optical disk is inverted in the disk drive such that the label surface side 22 is adjacent the optical pickup to form visible marks in the labeling layer 18. In this configuration, the grooves would not be visible from the label surface side 22; reflective layer 16 would block visibility of the grooves. Without the ability to count and track the groove-like guide tracks in this orientation, the disk drive would not operate. Also for this reason, the Satoh reference teaches away from combination with the Honda reference.

Thus because, as explained above, the modified disk drive would be rendered inoperative when writing visible markings on the optical disk, the Satoh reference teaches away from the combination and cannot serve as a predicate for a prima facie case of obviousness.

Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in light of Applicants' teachings. Therefore, the rejection is improper at least for this reason and should be withdrawn.

Independent claims 13 and 22 have each recite limitations similar to those of claim 21, discussed above. Therefore, for similar reasons as explained heretofore with regard to claim 21, the features of the present invention are not taught or suggested by the cited references in that the features of the first annular ring abutting the second annular ring, and the plural annular rings

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proximate a central hub of the disk, are neither taught nor suggested by the Honda reference in combination with the Klein and Satoh references. Also for similar reasons as explained heretofore with regard to claim 21, Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in light of Applicants' teachings. Therefore, the rejection of independent claims 13 and 22, and dependent claims 7-8, 16, and 25-26 is improper at least for that reason and should be withdrawn.

The rejection of dependent claim 24 is respectfully further traversed for at least the following additional reasons. Claim 24 recites:

"24. (Previously presented) The optical disk drive of claim 21, wherein the first radial position is nearer the central hub of the disk than the second radial position." (emphasis added)

The first annular ring of disk speed features is located at the first radial position, while the second annular ring of disk angular orientation features is located at the second radial position. Thus, claim 24 specifies that the ring of disk speed features is inside the ring of disk angular orientation features.

The Klein reference, conversely, specifies that the ring of disk speed features (i.e. data channel 104) is outside the ring of angular orientation features (i.e. index channel 102).

In rejecting claim 24 based on *In re Jupikse* as a mere rearrangement of parts, the Office states that

"Which of the two annular rings is closer to the central hub of the disk make no difference as to its purpose: the speed and angular tracking work no better or worse no matter which ring is inside or outside. Furthermore, the applicant's specification, as original filed, does not disclose any benefit or reason to have one ring inside the other." (Office Action, p.7)

Applicants respectfully disagree that shifting the relative position of the annular rings of Honda in view of Klein and Satoh, such that the ring of disk speed features (i.e. data channel 104) is inside the ring of disk angular orientation features (i.e. index channel 102), is obvious as a

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rearrangement of parts.

Applicant's specification discloses that the label region 106 of optical disk 100 is writeable by the OPU (para. [0022]). However, the OPU can only be operated within a certain radial range, which includes a minimum radial distance from the hub (para. [0035]). In order to read any disk features that are placed too close to the hub for the OPU to read, the encoder 406 can be used (para. [0035]). Thus, placing the disk speed features in the inner ring, and adjusting the radial position of the abutting rings such that the disk speed features are closer to the hub of the disk than the radial range in which the OPU can operate, advantageously increases the total area of the label region 106 by removing the disk speed features from the label region 106. This provides more labeling space for identifying disk contents, etc., since the label region 106 is not occupied by the ring of disk speed features. Therefore, the present invention advantageously provides more labeling area when the radial positions for the annular rings are as recited in claim 24. Because the rearrangement of parts modifies the operation, the obviousness rejection based on the rearrangement of parts is improper.

Furthermore, the Office has provided no motivation or reason to modify the Klein reference to place data channel 104 inside the ring of index channel 102. As explained heretofore with regard to claim 21, a motivation or reason is required by MPEP 2144.04 VI. C. in a rearrangement of parts obviousness rejection. Because no motivation is provided, the rejection is improper. It appears as if the only reason to arrange the two annular rings in the recited orientation is that this is the particular configuration recited in Applicants' claims. Such is impermissible hindsight.

Applicants respectfully traverse the Office's assertion that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the features recited in the claims of Applicants' invention. Such could be possible only in hindsight and in light of Applicants' teachings. Therefore, the rejection is improper at least for this additional reason and should be withdrawn.

Dependent claims 25-26 each recite limitations similar to those of claim 24, and are

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respectfully further traversed for similar reasons as for dependent claim 24.

Claims 3, 6, 9, 11-12, 14-15, 17, and 19-20 have been rejected under 35 USC §103 (a), as being unpatentable over U.S. patent application publication 2002/0191517 by Honda et al. ("Honda") in view of U.S. patent 6,145,368 to Klein ("Klein"), further in view of U.S. patent 5,119,363 to Satoh et al. ("Satoh"), and further in view of U.S. patent 5,107,107 to Osborne ("Osborne"). Applicants respectfully traverse the rejection and request reconsideration at least based on the dependence of these claims on one of independent claims 13, 21, and 22, whose reasons for allowability over the Honda, Klein and Satoh references have been discussed heretofore and against which the Osborne reference has not been cited. In addition, the stated motivation to combine the Osborne reference is improper in that it is merely a conclusory statement of generalized advantages that impermissibly uses the Applicants' disclosure as a blueprint or in hindsight for the rejection. Therefore, the rejection is improper at least for these reasons and should be withdrawn.

Claims 10 and 18 have been rejected under 35 USC §103 (a), as being unpatentable over U.S. patent application publication 2002/0191517 by Honda et al. ("Honda") in view of U.S. patent 6,145,368 to Klein ("Klein"), further in view of U.S. patent 5,119,363 to Satoh et al. ("Satoh"), further in view of U.S. patent 5,107,107 to Osborne ("Osborne"), and further in view of U.S. patent 5,670,947 to Nagashima ("Nagashima"). Applicants respectfully traverse the rejection and request reconsideration at least based on the dependence of these claims on one of independent claims 13 and 22, whose reasons for allowability over the Honda, Klein, and Satoh references have been discussed heretofore and against which the Osborne and Nagashima references have not been cited. In addition, the stated motivation to combine the Nagashima reference is improper in that it is merely a conclusory statement of generalized advantages that impermissibly uses the Applicants' disclosure as a blueprint or in hindsight for the rejection. Therefore, the rejection is improper at least for these reasons and should be withdrawn.

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Conclusion

Attorney for Applicant(s) has reviewed each one of the cited references made of record and not relied upon, and believes that the claims presently on file in the subject application patentably distinguish thereover, either taken alone or in combination with one another.

Therefore, all claims presently on file in the subject application are in condition for immediate allowance, and such action is respectfully requested. If it is felt for any reason that direct communication with Applicant's attorney would serve to advance prosecution of this case to finality, the Examiner is invited to call the undersigned Robert C. Sismilich, Esq. at the below-listed telephone number.